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| APPLICATION NO.       | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/559,384            | 05/09/2006  | Dan Albeck           | 27127U              | 3629             |
| 20529 7590 05/13/2009 |             |                      |                     |                  |
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| EXAMINER              |             |                      |                     |                  |
| CHAWAN, SHEELA C      |             |                      |                     |                  |
| ART UNIT              |             | PAPER NUMBER         |                     |                  |
| 2624                  |             |                      |                     |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/559,384

**Applicant(s)**

ALBECK ET AL.

**Examiner**

SHEELA C. CHAWAN

**Art Unit**

2624

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12/06/05; 2/16/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29, 32-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29, 32-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/S508)
- Paper No(s)/Mail Date 3/14/06
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Preliminary Amendment***

1. Preliminary amendment filed on 12/06/05 and 2/16/06 has been entered.  
Claims 30-31 are cancel.  
Claims 1- 29, 32 -34 are pending in the application.

***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Information Disclosure Statement***

3. The information disclosure statement (IDS) submitted on 3/14/06, the information disclosure statement is being considered by the examiner.

***Drawings***

4. The Examiner has approved drawings filed on 12/6/05.

***Claim Rejections - 35 USC § 101***

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-28, 33 and 34 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. The Federal Circuit<sup>1</sup>, relying upon Supreme Court precedent<sup>2</sup>, has indicated that a statutory "process" under 35

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<sup>1</sup> *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

<sup>2</sup> *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

U.S.C. 101 must (1) be tied to a particular machine or apparatus, or (2) transform a particular article to a different state or thing. This is referred to as the “machine or transformation test”, whereby the recitation of a particular machine or transformation of an article must impose meaningful limits on the claim's scope to impart patent-eligibility (See *Benson*, 409 U.S. at 71-72), and the involvement of the machine or transformation in the claimed process must not merely be insignificant extra-solution activity (See *Flook*, 437 U.S. at 590”). While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform an article nor positively tie to a particular machine that accomplishes the claimed method steps, and therefore do not qualify as a statutory process.

### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. 112, 2<sup>nd</sup> Paragraph:

Products (e.g., machines and manufactures) must distinguish over the prior art in terms of their structure (or structure + structure's function when claimed functionally) rather than function alone (MPEP 2114). Therefore, an “apparatus” that has no structural limitations at all violates 112, 2<sup>nd</sup> paragraph, in that it fails to “particularly point out and distinctly claim ...”.

2. 112, 1<sup>st</sup> Paragraph – Single Means Claim:

A single claimed structural element that performs a multitude of functions, where the functions are disclosed as being performed by separate structural elements violates the 112, 1<sup>st</sup> paragraph enablement requirement. That is, a single means claim which covered every conceivable means for achieving the stated purpose was held nonenabling for the scope of the claim because the specification disclosed at most only

those means known to the inventor (In re Hyatt, 708 F.2d 712, 714-715, 218 USPQ 195, 197 (Fed. Cir. 1983)).

The same rationale (enablement) applies even when the claim is not in a "means plus function" format.

Therefore, I'd suggest (for your convenience) use of the following form paragraph to address both issues "at one fell swoop".

Form Paragraph:

Claims 33 and 34 is rejected under 35 U.S.C. 112 first and second paragraphs as attempting to define a product (i.e., machine or apparatus) entirely by virtue of its function, in the absence of any recited structure.

Products must distinguish over the prior art in terms of their structure (or structure + structure's function when claimed functionally) rather than function alone (MPEP 2114). Therefore, an "apparatus" not having structural limitations fails to "particularly point out and distinctly claim ..." the invention in accordance with 35 U.S.C. 112, 2<sup>nd</sup> paragraph.

Furthermore, while the specification disclosure may be enabling for a plurality of structural elements performing the claimed functions [1], the specification does not reasonably provide enablement for a single structural element (or no structural elements) performing all of the claimed functions. That is, given the claim in question, the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims ("A single means claim, i.e., where a means recitation does not appear in combination with another recited element of means, is subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph" because a single means claim

covers "every conceivable means for achieving the stated purpose" and "the specification disclosed at most only those means known to the inventor" - *MPEP*, at paragraph 2164.08(a)).

Applicant is advised to define the apparatus by virtue of the individual structural element that serve to perform the individual functions recited in the corresponding method claim.

[1] Even when an apparatus is disclosed as being computer implemented (e.g., software implemented on hardware), the requirement remains that there be some structure recited in the body of the claim (e.g., a processor and a memory storing a program which when implemented performs the method steps). For purposes of "means plus function" language, individual disclosed steps corresponding to computer program elements operating on a processor (e.g., inputting, filtering, detecting and resolving) may be considered as separate means (*Dossel*, 115 F.3d at 946-47, 42 USPQ2d at 1885).

### ***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 29 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Sansoni, G., et al., "A Novel, Adaptive System for 3-D optical Profilometry Using A

Liquid Crystal Light Projector", IEEE transactions on instrumentation and measurement , IEEE Inc. New York, US, vol. 43, no 4, August 1, 1994, pages 558-565, XP000466818 (1994).

As to claim 29, Sansoni discloses a system for the three-dimensional surface reconstruction of an object comprising:

(I) a projector adapted for selectively illuminating said object with a first structured pattern and a second structured pattern ( see page 558, right-hand column , lines 16-20 supported by page 558, figure 1 and page 562, left-hand column , lines 4-20 supported by page 559, figure 4);

(II) at least one camera for obtaining images of said object when illuminated with said first structured pattern and a second structured pattern ( see page 558, right-hand column, lines 16-20 supported by page 558, figure 1 and page 562, left-hand column , lines 4-20 supported by page 559, figure 4);

(III) microprocessor means for determining three- dimensional surface topology of said object based on said images (see page 559, right-hand column, line 18- page 560, left-hand column, line 25).

As to 32, Sansoni discloses a control unit for use in the three-dimensional surface reconstruction of an object, said control unit being preprogrammed to carry out (i) processing data indicative of a first set of images of the object having a first structured pattern on the surface thereof, and determining correspondence of image points between images of said first set of images ( see page 558, right-hand column ,

lines 16-20 supported by page 558, figure 1 and page 562, left-hand column , lines 4-20 supported by page 559, figure 4);

(ii) using said correspondence for processing a second set of images of the object having a second structured pattern thereon to match elements of said second structured pattern between images of said second set of images (see page 558, right-hand column, lines 16-20 supported by page 558, figure 1 and page 562, left-hand column, lines 4-20 supported by page 559, figure 4);

(iii) analyzing the matched elements to determine spatial coordinates of the object(see page 559, right-hand column, line 18- page 560, left-hand column , line 25).

***Other prior art cited***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sakamoto et al., (US.7,315,643 B2) discloses three-dimensional shape measurement technique.

Hassebrook et al., (US. 7,440,590 B1) discloses system and technique for retrieving depth information about a surface by projecting a composite image of modulated light patterns.

Tamura (US. 4, 653, 104) discloses optical three- dimensional digital data acquisition system.

Gaynor et al., (Us. 5,548,418) discloses holographic structured light generator.



Hall-Holt et al., (US. 6,754,370 B1) discloses real-time structured light range scanning of moving scenes.

DeRose et al., (US. 6,037,949) discloses texture mapping and other uses of scalar fields on subdivision surfaces in computer graphics and animation.

### ***Contact Information***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela C Chawan whose telephone number is. 571-272-7446. The examiner can normally be reached on Monday - Friday 8.30 am - 5.00 pm and every Wednesday work from home. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikram Bali can be reached on 571-272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)? If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sheela C Chawan/

5/8/09

Primary Examiner, Art Unit 2624